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IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE APPLICATION OF :  
JOHN DONOHUE, ET AL. : EXAMINER: BERMAN, JASON  
SERIAL NO: 10/500,005 :  
FILED: FEBRUARY 14, 2005 : GROUP ART UNIT: 1795  
FOR: METHOD OF FAULT DETECTION :  
FOR MATERIAL PROCESS SYSTEM

REPLY BRIEF

COMMISSIONER FOR PATENTS  
ALEXANDRIA, VIRGINIA 22313

SIR:

The present Reply Brief is submitted to point out and respond to erroneous assertions and arguments in the Examiner's Answer (hereafter "EA") mailed on November 25, 2009.

**Remarks/Arguments** begin on page 2 of this paper.

### REMARKS/ARGUMENTS

In response to Appellants' arguments that the rejection of Claims 1 and 14 as unpatentable over Flamm in view of Gerrish under 35 U.S.C. §103(a) is improper, the EA states the following on page 17.

Gerrish, however, is not relied upon for its disclosure of specific measurement data. Gerrish, as discussed in the rejection of the outstanding office action, discloses a method of data analysis in which Fourier Transforms are used to convert raw data into spectral data for further analysis. It is this teaching upon which Gerrish is relied upon to demonstrate that it is well known in the art to perform this specific data analysis technique. Gerrish teaches that Fourier Transform analysis allows for higher accuracy and allows for the data to be more easily exported and monitored remotely (col. 7, lines 37-45).

The EA provides a similar statement on page 18 in response to the Appellants' arguments that the rejection of Claims 1 and 14 over Farber in view of Gerrish is improper.

However, as was noted in the Appellants' Appeal Brief, the Court of Appeals for the Federal Circuit recently reiterated the requirement of MPEP § 2143.01 by stating that a "patent composed of several elements is not proved obvious merely by demonstrating that each element was, independently, known in the prior art." KSR Int. Co. v. Teleflex Inc., 82 USPQ2d 1385, 1389 (2007). The Court stated the importance of identifying "a reason that would have prompted a person of ordinary skill in the art to combine the elements as the new invention does." *Id.* Furthermore, as explained by the Court:

... an invention is not obvious to try where vague prior art does not guide an inventor toward a particular solution. A finding of obviousness would not obtain where "what was 'obvious to try' was to explore a new technology or general approach that seemed to be a promising field of experimentation, where the prior art gave only general guidance as to the particular form of the claimed invention or

how to achieve it." This expresses the same idea as the KSR requirement that the identified solutions be "predictable."<sup>1</sup>

Here, the EA appears to be stating that it is merely the bare application of Fourier transforms on data that is being relied upon by the use of the Gerrish reference, as opposed to the specific application of Fourier transforms on voltage and current samples which Gerrish discloses. Thus, the EA is suggesting that one of ordinary skill in the art would know just by learning of the existence and Fourier transforms as an available data analysis technique in Gerrish to apply Fourier transforms to the etch profile data described in Flamm. Appellants submit that this only amounts to general guidance on performing data analysis. The EA has not addressed at all why one of ordinary skill in the art would be prompted or guided towards a particular solution to use Fourier transforms specifically on the etch profile data based on the disclosure of Gerrish. Appellants submit that it is especially pertinent for the examiner to make this showing since Gerrish applies a Fourier transform on voltage and current sample data from a voltage/current probe, which is clearly different than the etch profile data of Flamm. However, the examiner has not shown any particular known commonalities between analysis of voltage and current sample data from a voltage/current probe, as described in Gerrish, and analysis of etch profile data, as described in Flamm, such that a person of ordinary skill in the art would have a reasonable expectation of success<sup>2</sup> in applying a Fourier transform to the etch profile data of Flamm.

Similarly, with the regard to the rejection of Claims 1 and 14 over the combination of Farber and Gerrish, the EA has not shown why one of ordinary skill in the art would be prompted or guided to a particular solution to use Fourier transforms specifically on the "surface charge distribution pattern" described in Farber based on the disclosure of Gerrish. Again, the examiner has not shown any particular known commonalities between analysis of

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<sup>1</sup> *Bayer Schering Pharma AG v. Barr Laboratories, Inc.* 2009 U.S. App. LEXIS 17372, 91 U.S.P.Q.2D (BNA) 1569 (Fed. Cir. 2009) (internal citations omitted).

<sup>2</sup> See MPEP §2143.02

voltage and current sample data from a voltage/current probe, as described in Gerrish, and analysis of a surface charge distribution pattern, as described in Farber, such that a person of ordinary skill in the art would have a reasonable expectation of success in applying a Fourier transform to the surface charge distribution pattern of Farber.

In response to Appellants' arguments that the rejection of dependent Claims 23 and 24 as unpatentable over Flamm in view of Gerrish under 35 U.S.C. §103(a) is improper, the EA states the following on page 19.

The instant specification indicates that the Fourier transform into spectral space results in spectral data which in itself indicates whether a fault is global or local in nature. Paragraph 60 of the instant specification states that "changes in the amplitudes of the lower order spatial components...reflect global variations of processing parameters...and changes in the amplitudes of the higher order spatial components...reflect local variations of processing parameters..." Any analysis of the processing parameters, as would be performed by the system and method of Flamm in view of Gerrish, would therefore necessarily involve identification of faults either in the high or low end of the spectrum being analyzed which would automatically correspond to either local or global variations based upon their location in the spectrum.

The EA provides a similar statement on page 20 in response to the Appellants' arguments that the rejection of dependent Claims 23 and 24 over Farber in view of Gerrish is improper.

However, the EA has cited to the Appellants' specification to show support that the particular action of "identifying whether a process variation is global or local based on the signature of spatial components" is performed in "any analysis." As stated in MPEP 2145.X.A: "[a]ny judgement on obviousness is in a sense necessarily a reconstruction based on hindsight reasoning, but so long as it takes into account only knowledge which was within the level of ordinary skill in the art at the time the claimed invention was made and does not include knowledge gleaned only from applicant's disclosure, such a reconstruction is proper."

In re McLaughlin 443 F.2d 1392, 1395, 170 USPQ 209, 212 (CCPA 1971). (Emphasis added).

Here, the examiner has not shown at all that it was known at the time of the invention how to identify whether a process variation is global or local based on the signature of spatial components. By citing to the Appellants' specification, all the EA has done is shown that the Appellants understood how to how to identify whether a process variation is global or local based on the signature of spatial components. Therefore, it is clearly improper hindsight reasoning, based on knowledge gleaned only from applicant's disclosure, for the examiner to assert that the step of "identifying whether a process variation is global or local based on the signature of spatial components," as recited in Claim 23, is inherently performed in "any analysis" in the combination of Flamm and Gerrish, or Farber and Gerrish, at the time of the invention.

Similarly, without showing that the knowledge on how to identify whether a process variation is global or local based on the signature of spatial components was known at the time of the invention, the examiner has failed to show that it is inherent in the combination of Flamm and Gerrish, or Farber and Gerrish, to have a "controller" which is "capable of identifying whether a process variation is global or local based on the signature of spatial components," as recited in Claim 24.

CONCLUSION

Appellant respectfully submits that the EA fails to rebut the arguments in the Appeal Brief that the Office Action dated March 18, 2009 and fails to establish a *prima facie* case of obviousness. Therefore, a reversal of the Examiner's decision is again respectfully requested.

Respectfully submitted,

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